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## Age characters in swifts

by R. K. Brooke

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In the study of any zoological group the discrimination of age classes is obviously of great importance in obtaining maximum information from collected specimens and, where such classes are sufficiently distinctive, in field studies. Studies in the swifts have often been less efficient than they might have been because of the poverty of known characters for distinguishing age classes in most species. This is in part the reason why it is seldom appreciated that swifts do not usually breed till their second year. This communication deals with age characters of birds in the hand and, even so, is not the last word on the subject: it is, rather, a guide to future studies. Only in the treeswifts *Hemiprocne* are the juvenals readily distinguishable by their chestnut and white barred plumage with down attached in the early stages. In *Collocalia*, once a young bird has achieved its full size, *i.e.* normal wing length, there is no means of separating it from an adult either by colour or measurement or skull ossification since this is not always complete even in breeding birds (Vincent 1934, Johnston 1958). Juvenal characters for *Cypseloides rutilus* (Vieillot) are given in Collins (1968), for *C. lemosi* by the describers (Eisenmann and Lehmann 1962) and for *C. niger* (Gmelin) in Bent (1940). Series of most other members of this genus (*sensu* Peters 1940) are still inadequate for a study of this type. In *Apus* it is generally said that white edges to the feathers are a sign of immaturity but this is only true of certain feathers as will be explained below. De Roo (1966) has shown how an examination of primary wing feathers in *A. a. apus* (L.) can be used for aging that form. Nothing more will be said on this subject except to remark that his findings apply to nearly all species and races (*A. acuticauda* (Jerdon), *A. aequatorialis gelidus* Brooke and *A. affinis bannermani* Hartert are among the exceptions) in *Apus* and *Cypsiurus*. Mackworth-Praed and Grant (1952) indicate how age classes may be told in *C. parvus* (Lichtenstein) and their remarks are true as far as they go. While holding a Frank M. Chapman Memorial grant from the American Museum of Natural History I have recently been able to examine a large

number of specimens and attention was given to this problem as a subsidiary aspect of a study of the classification and distribution of African swifts.

In most fork-tailed swifts the fifth or outermost rectrix is more pointed or attenuated or emarginate on its inner web in the adult than in the juvenal. In some species the difference is slight and it is only possible to separate juvenals (including nestlings) from birds which are older but not necessarily adult. In others the difference is sufficiently great to enable the intermediate or sub-adult or immature class to be recognised by the intermediate shape of the fifth rectrix. It must be appreciated that in the species to be discussed the nestling and juvenal fifth rectrix has a rounded end that is not pointed to any significant degree. After the first moult of the rectrices a more pointed fifth rectrix appears. The effect is achieved chiefly by reduction of the web on the inner side of the rectrix. In some species there is no further development of the shape of the fifth rectrix, but in those with markedly forked tails it is the second moult which produces the elongated and emarginate fifth rectrix which gives the characteristic shape to the adult tail. In the following species it is only possible to separate juvenals and non-juvenals:

*Apus aequatorialis* (von Müller), *A. apus* (L.), *A. niansae* (Reichenow), *A. alexandri* (Hartert), *A. bradfieldi* (Roberts), *A. barbatus* (Sclater), *A. berliozi* (Ripley), *A. pallidus* (Shelley), *A. pacificus* (Latham), *A. horus* (Heuglin), *Tachornis phoenicobia* Gosse, *T. squamata* (Cassin), *Cypsiurus batasiensis* (Gray) and *Cypseloides niger* (Bent 1940). In the following species it is possible to separate juvenals, immatures and adults:

*Apus caffer* (Lichtenstein), *A. melba* (L.), *A. acuticauda* (Jerdon) (Brooke in press), *Schoutedenapus myioptilus* (Salvadori) and *Cypsiurus parvus* (but see discussion of *C. p. gracilis* [Sharpe] below). There is a slight trace of this emargination in *Aeronautes* but while it can be seen in a series it is so slight that it cannot be described in words and it is therefore of doubtful value as an age character in that genus. *Panyptila* and *Tachornis furcata* (Sutton) may be exceptions: I have not seen enough material to determine whether there is any development at all in the shape of the fifth rectrix though it may occur in the fourth rectrix of *Panyptila*. In *Streptoprocne* abrasion of the rectrices is so rapid that a study of this type seems doomed to frustration.

In *Cypsiurus parvus* (not *C. batasiensis* which is a separate species [Brooke in prep.]) the nestlings and juvenals have unstreaked throats and chestnut tips to the feathers, particularly on the upperparts and under tail-coverts. In *C. p. brachypterus* (Reichenow) the chestnut tips on the underparts are not well developed and abrade before the nestling flies. In immature birds the streaking on the throat may or may not be present and this class cannot be distinguished by the presence or absence of this character but only by the intermediate shape and length of the tail (measurements in Brooke in prep.—roughly speaking where the fifth rectrix exceeds the fourth by more than 2 cm. the bird is adult and where it exceeds it by 1 cm. or less it is juvenal) coupled with the absence of chestnut tipping. Adults may be told not only by their greatly elongated, emarginate fifth rectrices but also by their possession of a streaked throat and, obviously, by having no trace of chestnut tipping in the plumage. It should be noted that the juvenal of *C. p. gracilis* in Malagasy has a fifth rectrix like that of immatures of African races of *C. parvus* and a streaky throat and that therefore it is not possible to distinguish an immature stage of this form since the first moult produces an adult rectrix. The same may be true of *C. p. griveaudi* Benson of the Comoro islands which I have not seen but which is said by its describer (Benson 1960) to be very close to *C. p. gracilis*. In *C. batasiensis* the chestnut tipping in juvenals is

replaced by off-white and throat streaking is a rare individual aberration. The first moult produces an adult type rectrix.

It has long been held that white edges to the feathers are a sign of juvenility in a swift: this is too broad a statement. Fresh feathers in many tracts have slight pale edges even in birds which are fully adult. However broad pale edges to the feathers of the crown are only found in juvenals in *Apus*: it is particularly marked in *A. apus* which has the most distinctively marked juvenal in the genus. Similarly, pale edges to the tail feathers and the four outermost primaries are only found in juvenals of *Apus*, *Cypsiurus*, *Nephoecaetes* and *Streptoprocne*. In *Chaetura* likewise the four outermost primaries only are tipped or edged with white in the juvenal but not in the adult after moulting. It is still possible to tell that in adults these primaries are fresh by their correspondence in colour with the inner primaries which are pale edged and by their possessing a greenish wash or gloss which with wear turns dark bluish-purple in dark forms and dull brownish in pale forms.

Pale toes are found in nestlings and newly fledged juvenals in most, perhaps all, genera: these become dark shortly after leaving the nest. Individual nestlings may have toes substantially darker than average but possession of pale toes is a property of birds in or only just out of the nest, pathological conditions excepted.

In *Hirundapus* juvenals have dark tips to the white under tail-coverts which are replaced in the post juvenal moult by pure white feathers. In *H. caudacutus caudacutus* (Latham) the juvenal has a grey-brown, slightly barred throat and grey-brown loreal patches whereas these areas are creamy white in immature and adult birds. Likewise in *H. giganteus indicus* (Hume) the loreal patches are grey-brown in juvenals and creamy white thereafter.

In *A. affinis* the nestlings always have unstreaked throats even in those races such as *bannermani* in which all adults have dark streaks on the throat. However in most races some birds marked as being in full breeding condition have unstreaked throats and no *A. a. galilejensis* (Antinori) have streaked throats. The nature of this character needs further investigation before it can be used to age fully grown birds.

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University Museum of Natural Science, Baton Rouge, La.  
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## An undescribed subspecies of Hepatic Tanager

### *Piranga flava* from Colombia

by Kenneth C. Parkes

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The Hepatic Tanager *Piranga flava* (Vieillot) has the largest breeding range of any member of the Thraupinae, from south-western United States to Argentina. In Colombia it has been reported only from the western Andes and adjacent Cauca Valley (*desidiosa* Bangs and Noble), the interior of Nariño in the south-westernmost corner of the country (*lutea* [Lesson]), and the Santa Marta Mountains of the north-eastern corner of the country (*faceta* Bangs). The species has not previously been reported from anywhere in the eastern Andes of Colombia.

In 1916, the late M. A. Carriker, Jr., collected a series of six Hepatic Tanagers at El Cauca, Magdalena, on the western slope of the Eastern Andes. Carriker (1955:55) described this locality as "a finca [= farm] . . . on the trail from Loma Corredor to Ocaña," and Meyer de Schauensee (1948: 292) gives its altitude as 900 metres. When W. E. Clyde Todd, then Curator of Birds (and now Curator Emeritus) at Carnegie Museum catalogued these specimens, he assigned them to *faceta*, the subspecies of the Santa Marta Mountains and the coastal ranges of Venezuela. Later, however, he wrote on his file card for *faceta*: "On re-examination I find that the three males from El Cauca . . . show a red of a different shade from either *faceta* or *desidiosa*, and probably represent still another form." He did not pursue the matter further, however, and this range extension for the species was never published. Zimmer's monograph (1929) of the species is flawed by the author's failure to assemble all possible material; in the case of *faceta*, described from the Santa Marta Mountains of Colombia, he based his remarks entirely upon three males and one female from Venezuela. Had he borrowed the ample Carnegie Museum series, he probably would have noted the characters of the Magdalena birds, and would certainly have added the locality to his map. In any